

# **Report of the Flagstaff and Phoenix Mountain Lion Workshops**



**Sponsored by**

**The Arizona Game and Fish Department**

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## **The Workshops**

The Flagstaff and Phoenix Mountain Lion Workshops, sponsored by the Arizona Game and Fish Department, continued a public engagement process to explore AGFD actions on the issue of lions in the urban interface. Approximately 40 people attended the workshop in Flagstaff, with 50 in attendance in Phoenix.

Based on the previous workshop, held in Tucson earlier this year, and additional public input, the Department revised its response protocol, now titled “Action Plan for Managing Lion/Human/Property Interactions.” The Department sought input at the Flagstaff and Phoenix workshops on the new draft. In addition, participants discussed education and research as well as legislation.

Participants were divided into small discussion groups. Domenici Littlejohn, Inc., a consulting firm from Albuquerque, facilitated the Flagstaff workshop, and members of the Department’s Adjunct Faculty facilitated the Phoenix event.

## **Key Comments from the Flagstaff and Phoenix Workshops**

### **Comments from the Action Plan Sessions**

- The purpose of the Action Plan needs to be clarified, especially in the areas of property, prevention, and the urban interface.
- Background information should be carefully reviewed with appropriate citations to the research base of the information.
- The emphasis on education is widely appreciated and should be retained.
- The information on the problem and situation should be balanced to include both a lion and a human perspective and should include information about appropriate and inappropriate human and pet behavior.
- The document should include a statement about the importance of context and some of the contextual factors that affect human-lion interaction.
- The categories of interaction should be clarified and refined.
- Typing lion behavior is useful, but should be carefully reviewed and appropriately qualified.
- Procedures for verification and monitoring should be as complete as possible.

### **Comments from the Education and Research Sessions**

- Establish a Department education and outreach coordinator to head proactive educational efforts.
- Carefully design a message based on research to include information about the lion, the ecosystem, and the interface as well as human factors. Be sure that the message is balanced.
- Actively design an educational campaign that targets audiences, carefully selects media, and includes planned programs and spots.
- Integrate education into other processes such as community planning.
- Continue appropriate research and base educational efforts on verified information.
- Research should concentrate on (1) biology, (2) human attitudes and behavior, (3) synthesis of existing literature, and (4) effects of various interventions.

### **Comments from the Legislation Sessions**

- Limited immunity should be established.
- Feeding legislation would be helpful.
- Realistic funding options should be pursued.

# Action Plan

## Overall Context

The draft action plan begins with several items of information to provide a context for Department response. These include the plan's purpose, a statement of the problem, a brief summary of mountain lion status and regulations, and an overview of efforts to provide public information and education.

Although several suggestions were made to improve these sections, participants were largely supportive, and many felt that the purpose and problem statements were clear. One participant wrote, for example, "I think overall it has completely outlined what items are affecting the current mountain lion population—all that contributes to the problem. Overall, the department has done a good job of outlining what they need to do to handle the lion/human interaction problem." Appreciated also were the recognition of multiple perspectives on the problem and the acknowledgement of the involvement of human behavior in the problem.

Although most participants felt that these sections are well written and concise, a few expressed the opposite view. In addition, numerous suggestions for improvement were provided and are detailed in this section. There seemed to be confusion among some as to whether this document should apply only to the **urban interface**.

The issues relevant to overall context explored in the workshops are detailed below:

**Prevention and Management Issues.** A number of people felt that the draft is too restrictive in focusing solely on response and should be broadened to include prevention. Although this particular document is designed to outline a response protocol, several participants were clearly concerned about larger Department and inter-agency issues of **overall management**.

**Education Emphasis.** The accent on education was noticed and appreciated by several participants. One said, for example, "It is good that AZGF has begun a process to study mountain lions. This process has raised awareness and invited public participation. This process will hopefully result in changes in the way we (humans) relate to mountain lions and other species." In general, participants seemed hungry for **more public education** on this issue and had many suggestions, which are outlined in the section on education below. Many suggested that the section in the draft action plan on information and education be expanded to include more specifics on the education plan.

**Human Concerns.** Several workshop participants were concerned about the "human" side of the interaction problem. Specific suggestions follow:

- Including the **term *property*** in the title expands the scope of the document too far. Several individual suggested removing this term from the title to avoid confusion about the purpose of the plan.
- Some felt that the context sections do not sufficiently emphasize the **perspective of the lion**. For example, one participant noted that all four sections on page one relate

to “interactions” solely on human terms, i.e. lion/human interactions “are a problem to humans.”

- A few participants wanted to include a statement that people have a **personal responsibility** in lion country. For example, one participant wanted to see an acknowledgment of human choices to live and recreate in interface and wildland areas.
- Some wanted more acknowledgment of the role of agencies in promoting **recreation** without considering wildlife interactions.

#### **General comments offered about these sections as a whole:**

- Avoid use of emotionally laden words.
- Use plain English so average people can understand.
- Some participants confused about whether the document is “for” the public or experts
- Consider adding a section that sets the Draft Action Plan within the greater framework of AZGFD lion management – where does this protocol fit with other documents or policies managing lions? Add a reference to Wildlife 2006, the Department’s overall statement of how to manage wildlife (including lions).
- Some people like conciseness of document while others want more information added so it is comprehensive.
- Strengthen the point that this document is about lions in the urban interface.
- Instead of “lethally removed” use “killed” and use it consistently.
- Don’t use euphemisms.
- Use defined terms including “incident” consistently.
- Overall the discussion of human behavior is clear, but is it clear throughout the protocol that humans are moving into lion habitat rather than just generally attracting them from elsewhere by feeding our pets outside etc.?
- Change lion status and regulations – declassify as a game species.
- Nowhere is there a plan for evaluation – radio collars should be used to track problem lions to justify lethal action. More education, signage. Include how to avoid a conflict. Public should not be on lonely trails at certain times of the day, when lions are out. Track lion activities first. Unacceptable behavior must be documented.
- Maps of lion habitat/concentration of lions on website or in a brochure.
- Graph this all over time – put it into a graph.
- Include human population increase in area – rather than just say encroaching on habitat.
- If you keep putting details in this – it’s going to be a forty-page document.

## **Specific comments about introductory text:**

### **Plan purpose:**

- “while maximizing ~~minimizing~~ public safety ~~risks~~ and minimizing the need to remove ~~eliminate~~...”
- The word “consistent” is good – the protocol has to be applied the same statewide.
- Add “to provide the public with information on lion behavior with the goal of understanding the basis of actions taken by the department” if this is a goal of the document.

### **Problem statement:**

- Should be specific to Arizona and to the urban interface.
- It’s good that the problem statement includes the human actions that are problems.
- Last sentence: Regarding use of word “incident” in the statement of why 9 lions have been removed, either use a different term, or use words accurately in accordance with the definitions later in the document (speaker says not all were “incidents,” some were attacks).
- Regarding cases of injury or death to humans, replace “some” with “a few” because the former overstates the risk.
- Or say, “This has resulted in human-lion interactions in which there have been cases resulting in injury or death...”
- Also replace “lethally removed” with “killed” or use “lethally removed” consistently (such as rather than “eliminate” in first paragraph).
- Add a statement of how many humans have died as a result of lion attacks and how many have been seriously injured.
- Regarding lions that were removed, how many were unprovoked stalkings versus how many were attacks provoked by humans.

### **Status and regulations:**

- “where lions are abundant” may be too vague. Possibly reference how many lions are legally taken each year, to put it in perspective.
- Might provide information in a map form showing where lions are abundant **and** close to human habitat. Group was told that this information was in a previous draft and was taken out, but one commenter wants it back in, along with the information that we don’t accurately know how many lions there are.
- Or maybe it’s not important to include information about hunting and statewide lion populations when this protocol is about lions in the urban interface.

### **Information and Education:**

- “specific training ~~can~~ will be provided.”
- Department must identify techniques for this training (perhaps a video).

- Training should be specific to what police and other specific audiences need to know.
- “The more you can educate people, the stronger the lion management system will be.”
- Who is doing the education? We assume it is Game and Fish but don’t know if it’s good enough. I can find five experts with completely different opinions from the Game and Fish expert. Who is doing the writing and speaking? Your education brochure should include information from a wide variety of experts.

**Background Information.** In general, participants appreciated the information about the lion. Several suggestions were made here:

- A few participants felt that this section reflected too much confidence about the information. One participant said, “There’s actually a lot of uncertainty about factors causing the increase. I don’t see an **appropriate amount of equivocation** in the purpose statement. I don’t think we can absolutely say what the contributing factors are. Sport hunting may or may not be a contributing factor. We don’t know.”
- Some participants asked for an acknowledgment of the **importance of context**. For example, one participant said, “There needs to be a stronger mention of context. For example, a mountain lion may not be sure if responding to a human or not. Also, what is acceptable and unacceptable is open to interpretation and misinterpretation.”
- Some noted the need to mention the **changes that are affecting the problem**: “Can a reference be made to the fact that we are in an ever changing world? Drought, fire, development, all bring changes. Maybe it’s not fair to expect the department to do a 360 when something happens that is new because of changing circumstances. The dept. needs to be given a time frame to respond.”
- Other participants requested that AZGF note that **encounters are rare** and attacks even more rare. “Eliminate this false idea that they (mountain lions) are a significant threat to humans.” “How many fatal attacks, if any, have there been in AZ?” “Need to address in the brochure that sightings are rare, attacks even rarer...no one killed in AZ since...”
- Several participants had concerns with the section on **Mountain Lion Status and Regulations**. Some felt there should be a short explanation on how the department estimates statewide lion numbers. “The population estimate is contentious - prove there are that many -it is an overstatement.” “Where is the science in the number of mountain lions cited?” One participant said the number of cougars killed annually is not relevant to “managing interactions.” One person stated that the line in section 3 about “mandatory checkout process to gather information” fails to tell that a non-trained person (hunter) collects data. Two people did not find the comments about hunting relevant.
- Several individuals wanted more indication of the **data or research basis** for the information on the mountain lion. A few also suggested a formal scientific peer review of the document by mountain lion experts.

- Several were unhappy with the **amount and type of information reported**. Possible areas for additional information include changing lion behavior in response to changing conditions, population estimates, role of the species in the ecosystem, range sizes and movement patterns, number of lions killed as a result of human-lion interactions (not through hunting), figures on hunting takes, depredation reports, and the nature of lion predation.

**Other Comments.** Responses that are more individual include the following:

- “I strongly disagree with mountain lion hunting and issuing tags.”
- “Make clear that we collect data to go back to it and inform ourselves about what it is used for: to facilitate learning. Database is the method and learning is the goal.”
- “Add that domestic pets in habitat areas are also a problem; their human owners are unfamiliar with mountain lion behavior.”
- Some participants suggested that AZGF make it clear that it has authority over all wildlife.
- “Rather than focus on hunting regulations, focus on number of incidents and encounters in these areas.”
- “There’s nothing here that gets at the policy trigger for intervention and when the Department acts on the public’s behalf.”
- “Define perimeter of the urban interface area. Numbers could then be provided relative to these interface areas.”
- “Add a clause here about updating the plan if we have new knowledge or techniques that emerge. There should be a provision for regularly revising and updating it.”

## Definitions

Much discussion took place on categories and definitions, including acceptable and unacceptable lion behavior, as reflected below.

**Distinctions and Terminology.** Participants in general seemed confused about the distinction between categories. The following summarizes these concerns:

- The categories are too **ambiguous**. One person requested the Department consider the word *confrontation* as an alternative to *Incident or Attack*. What, for example, is the difference between an incident and an attack? What is the difference between a sighting and an encounter?
- Some suggestions were made to **clarify these distinctions**. Some participants suggested that a distance criterion be included. One person thought that the categories should be linked to acceptable or unacceptable behavior. For example, an encounter could be defined as “an unexpected direct neutral meeting between a human and a lion without incident and in which the lion behaves in an acceptable manner,” and an incident as “an interaction between a human and a lion in which the lion behaves in an unacceptable manner and in which the human must take an action to make the lion back down or leave the area of the human.” Another person suggested that examples would be helpful.

**Lion Behavior.** Many comments were made about acceptable and unacceptable lion behaviors.

- Some participants disagreed with the word choice of these terms and asked the Department to explore **more neutral language** for when the Department should be notified about a mountain lion (i.e. what lion behaviors would require/not require Department response). Others asked for terminology that is more scientific.
- Several noted that the acceptability of behavior depends on **context**, or where the behavior occurs. One person wrote as well that, “Individual lion behaviors vary – one lion may be aggressive, and another may not be – this has to be clarified.”
- Many were concerned about the **problem of perception** and felt that the follow-up reporting is essential in classifying the behavior. Some suggested that interviewers be well trained and that an “ultimate expert” needs to be in charge of making sure that judgment calls are accurate.
- Several felt that the **language is too vague**. For example, one person asked for a clearer definition of “predatory behavior.” Another asked for clarity on “aggression.”
- **Additional behaviors** were suggested by some of the participants, including, for example, the repetitive sighting of a lion in a public area like schoolyards, ongoing evidence of lion kill in heavily populated areas, killing pets, and bona fide or verified stalking. One person said that any sighting of a lion within a few miles of a neighborhood is cause for concern and should be reported.
- Some participants **disagreed with various behaviors listed** as unacceptable, including intentionally approaching a human and displaying a lack of fear.

**Human Behavior, Pets, and Livestock.** Several comments were made about the categories in terms of human behavior, pets, and livestock. These include the following:

- Some felt **Human Acceptable/Unacceptable Behaviors** need to be added along with information about what constitutes inappropriate or appropriate human behaviors. How should the Department respond to inappropriate human behavior?
- One participant suggested more clarity on when lion **interaction with pets or livestock** constitutes an incident or an encounter and make it clear as to whether any action is going to be taken against a Puma in such cases.

## **Actions**

Participants responded to proposed Department actions in several ways, as outlined here:

**Information, Verification, and Monitoring.** There was quite a bit of concern about this aspect of Department response.

- Several participants suggested there needs to be more information about **handling potential problem animals**. After an incident is there some type of tracking, tranquilizing or tagging to see if the one incident is part of a pattern or just a one-time mistake before mortal action is taken against the lion?
- Participants asked if a lion is monitored after an incident? For example, “Is it tagged by officials - 3 times you’re out - like a bear?” “Is it possible to ear-tag a cat to watch it after an incident?” “There needs to be a protocol for determining process for **pattern of aggressive behavior** in a lion.”
- **Verification** was a concern. One person said, for example, that there should be criteria to confirm lion sightings, especially in light of the fact that most people cannot correctly identify lion tracks. Monitoring seems especially important for incidents.
- One person urged that **necropsy** be done for all kills, including sports hunting.

**Human and Pet Behavior.** A number of people showed concern about responding to human and pet behaviors, including sloppy **feeding of pets**, walking with a **passive dog**, and unintentional and intentional **aggressive behavior on the part of a person**.

**Cooperation.** A few people wanted to see information about cooperative inter-agency action responses.

**Alternative responses.** Additional response possibilities were suggested, including aversive stimuli (hazing, lights, repellants, etc.), relocation, closing of area, and posting warnings at trailheads. Several people suggested that a series of interventions be used before actually killing the lion.

**Other Comments.** Numerous editorial suggestions were made. These are listed below.

## Page 2 “Acceptable and Unacceptable Wildlife Behaviors”

- Move “Note” on Page 3 to a second paragraph after introductory paragraph on Page 2
- “humans may intentionally or unintentionally provoke.” Sometimes people intentionally take actions they shouldn’t. If this is what has provoked unacceptable lion behavior the person’s intent should be stated.
- The person evaluating the sighting for AZGFD should make the decision about how to classify and respond to the human-lion interaction, not a responding police officer or other person (two commenters agreed on this)
- There is a difference between possible and probable sightings
- The AZGFD response might be different depending on context even for an aggressive behavior; a mother lion with kittens in a more rural area might do something that in an urban context would be unacceptable
- There are urban interface lion issues that are different from rural or wildlands lion issues
- In the definitions section, define the types of different signs that can be posted: “lion has been seen, keep kids close” etc.

- In addition to “acceptable and unacceptable” there should be a third category, “behavior of concern,” that in an urban setting is in between the other categories. Make sure these are accurate and based on biology.
- There should be a category to determine if attack was provoked or unprovoked.

### **Page 3 “Game & Fish Staff responses”**

#### **What warrants a response from AZGFD?**

- Incidents and attacks might
- On their own, single encounters or sightings don’t, but consistent sightings of same lion in an area proximate to humans such as at Sabino Canyon might – this should be reflected in document
- Also the department should respond differently if a lion is consistently seen at a school or other areas where children congregate.
- Need a plan for evaluation before lethal action. Lions should be radio-collared and electronically tracked. Lethal action should be the very last resort.
- APHIS – who is this? Define it
- Well thought out – response seems to be related to threat level.

#### **What doesn’t warrant AZGFD response?**

- Sightings and encounters as defined do not warrant a response
- All interactions should have some response from AZGFD at some level because that’s an opportunity to educate the public. Even an inaccurate report can create a public perception that provokes problems, especially if the Department does not counter by providing accurate information. So each report should elicit Department response to take advantage of that educational opportunity
- What constitutes a response? Filling out a form? Going into the field?
- Even sightings should be reported as indicators of lion activity, so if that constitutes a response then yes, every contact with a lion calls for a “response”
- Maybe there should be a number to call with reports of sightings, posted on website
- Distinction between verified sightings and unverified responses should be made
- Who is responsible for classifying? Wildlife officer on scene, or at higher level?
- The fact is that human perception sometimes characterizes the same behavior differently: Regarding acceptable and unacceptable, one person’s curious lion is another person’s stalking lion, so explain the differences more thoroughly
- This section is very well written, keep as is

#### **a. Response to Attack:**

- Pets and livestock injured or killed should be included within definition of attack
- The option for AZGFD to kill a lion should be removed altogether – AZGFD should never kill lions
- Instead they should tranquilize and relocate the lion not to a wildlife facility but to the wild. They should know where there is a vacancy in the habitat because hunters and ranchers etc. have to report where they have taken a lion

- The lion should not be killed, especially since some attacks are provoked by humans and under these circumstances there should be an investigation but no killing of the lion
- People live and recreate in lion habitat at their own risk
- Studies show that there are problem lions that see people as direct or indirect sources of food and moving these lions doesn't end the problem
- First response for every incident should not necessarily be killing the lion
- Attacks should be investigated thoroughly and there are conditions under which a lion could be killed
- Regarding hunting reports showing gaps in habitat, lion ranges overlap so hunting data won't necessarily show gaps. Moving an urban lion to a rural setting means it has to compete with other lions in the general area and 99 out of 100 won't survive the competition
- Fact that relocated lions often don't survive should not be a factor in deciding to move a lion
- Any time a lion attacks a person (bites, draws blood, etc.) there is a chance for rabies, which requires the destruction of the animal. When you're checking for rabies you have to test the brain
- Lions don't normally attack people so the behavior is abnormal and the number one possible cause would be rabies
- Rabies is not a high risk in lions
- Add: alert public health officials / animal bites division
- All wildlife responses should be handled at regional level without delegation – whoever is in charge stays in charge
- Immediately get a person tracking a “problem cat” to avoid the situation of going out and hunting and killing any creature of the same species
- In the case of an attack when law enforcement is called in the law enforcement does not and should not direct AZGFD as to what to do with the animal – in other states this has been an issue, especially in distinguishing between human and animal attacks
- Who gets notified: immediately notify regional supervisor, but don't wait if he/she is gone in order to respond; make sure whoever has the responsibility keeps it all the way thru and doesn't pass it off halfway thru
- Add information about obtaining tissue samples from victim to ensure that there is a match when identifying the lion
- Add closure of area as an option (as in incident)

#### **b. Incident**

- AZGFD should never have the right to kill a lion
- And in response to an incident should not be able to tranquilize or relocate
- “If Wildlife Services....” Tighten up “other persons” – stick to a professional Department or a professional lion tracker accompanied by AZGFD staff. Develop a list of approved trackers and tighten the wording to refer to that list. May add also experienced experts who can advise on these issues.
- Make sure that selecting the tracker does not add wasted time
- Add a time limit on how soon to get a tracker to the scene – make it quick

- “The following factors” add mention of what type of human behavior preceded the incident, a description of the human circumstances
- Same bulleted list: add “sightings and encounters” not just incidents
- Incident, bullet #4: Replace: *Immediately contact the appropriate land management agency and local law enforcement authority* with *Immediately contact and coordinate with the appropriate land management agency and local law enforcement authority.* . .
- Also, consider closures more often; is there some way to strengthen this policy, e.g., through better coordination with land management agencies?
- Incident, bullet #5: Add pets more strongly to this response protocol (as earlier suggested in definition of “Incident” above).
- Ask public for contributions for relocation efforts.

### c. Sightings or Encounters

- Add consideration of multiple sightings or encounters being different from a single sighting or encounter
- Sightings, bullet #2: personal contact *between whom and in what form?* Also, provide phone numbers, online reporting (if available), name or title of Department contact person
- Sightings, bullet #2: Add: Personal contact is encouraged, **but not mandatory**
- Encounter, bullet #1: Make clear who will respond; add field interview using forms
- Definition of field response – need clearer definition
- Trying to do a database of all sightings may be impossible and unnecessary. Department will spend a lot of time that is meaningless. With sightings, just educate—don’t collect data on sightings.
- Responding to all encounters is also unnecessary. Causes extreme overreaction and media hype sending the wrong message to the public—that the presence of mountain lions signals danger.
- Have a way to indicate how many sightings there have been in particular areas so people can be better prepared.
- In Encounter, when is field response necessary? Be clear on first bullet. Encounter is neutral – make sure of appropriate level of response and not overkill
- If calling it in, expect a response
- Need measured field response – have to investigate to determine level of response
- Does incident constitute unacceptable behavior on part of the lion?
- Anytime the Department is called, should take opportunity to educate. Education needs to be listed in every category of definitions. (2)
- Could post warnings at trailheads; disclose mountain-lion habitat in real estate dealings.

### Media Guidelines

In general, participants liked this section of the draft. They felt that it is comprehensive and well defined. Some participants wanted a **clearer definition of the media**. Some asked for clear media and **communication guidelines** as well as a provision for **training** the P.I.O. on how to handle the media as well as training for the media themselves. One group suggested that the

order of contacts be changed to “start with the Wildlife Manager followed by I&E Specialist, F.S., R.S.” In contrast, one participant wanted to see some of the **layers of bureaucracy** removed.

Several people urged the Department to develop a **coherent approach**. They asked for Game and Fish to **include appropriate agencies** - non-profits and other experts. Comments included, “They have defined the problem in too limited a way. Have a networking plan with stakeholders before something is communicated to the press. It should be a public information protocol, rather than just a press game. Have a plan to follow.” “This may be too late because it immediately becomes a public document and if it bleeds it leads.” “Nonetheless, the Department needs to network!” “Also, make sure Department Public Outreach Officer is continually trained.” Employ “very strict guidelines for information shared with the media.”

Actually, participants had a great deal more to say about the media, which is summarized in the section on Education and Research below.

## **Forms and Data**

Many people felt the forms were a good start. One suggested that the categories were well developed, but that they were not all entirely **related to the response** portion of the draft document. There was significant concern about making sure that data is as **accurate and complete** as possible. For example, one participant wrote, “Game and Fish needs to ask lots of questions to determine if a lion was sighted – no leading questions – take time with interview. Another wrote, “We lack sufficient information – should include lion sightings in an overall study – could result in benefit to nation.”

Numerous editorial suggestions were made. These are summarized in Table 1.

**Table 1**  
**Editorial Suggestions for Forms**

- Did humans try to provoke an attack or provoke a reaction?
- Were dogs present? If so, were they controlled or uncontrolled? Were they aggressive and barking?
- Several people expressed concern about using the terms *credible/not credible* on the Interview Forms and suggested they be eliminated from the text. Others suggested the elimination of all “subjective valuations” portions of the form. “This becomes public information right away and should not be made available to the press. However, there needs to be some way to distinguish what is worthy of attention, i.e. collaborating evidence.”
- “Threatening” should be eliminated and just have lion behavior and then list various behaviors (more of them to check).
- “Eliminate *displays aggressive behaviors to humans* and have just behavior. Add a section of ‘Physical Description’ of animal.”
- “Develop a check list for the WM for investigations.”
- “Either remove the word *Attack* or add a better definition.”
- “Keep the form as simple and as objective as possible.”
- “There should be specification of training for person issuing report - (e.g.) AZGF personnel.”
- There needs to be firm guidelines about what is released to the media. “I would discourage quotes from involved person as they are often ignorant...Need to have balance from spokesperson. Re: facts are...”
- Under the section *Threatening Lion Behavior*, eliminate “threatening” and eliminate “unusual interest in humans.” Include more science!
- Before they review this have someone professionally review document for subjective vs. objective behavior. Feels very subjective now. Again, more science used. There should be some training on completing these forms
- One person stated their belief that, “Whoever developed the text of the draft action plan did not develop the forms.”
- Missing – Reference to press conferences

## Education and Research

### Educational Needs

Many educational needs were explored. These include pet feeding, wildlife feeding, safe behavior, information about the lion and its habitat, and general environmental education. Priorities are listed later in this section.

**Feeding Issues.** According to participants, feeding domestic prey is a problem; there is general ignorance on the part of pet owners. People cannot leave pet food outside. Raising vegetation for prey animals, like rose bushes, is a problem most people do not understand. Roses attract deer, which in turn attracts predators. People need to bring in their pet food at night. People also need to be educated about leaving water out when there are drought conditions - draws prey species and the predators. Let people know they need to adapt to the desert environment, including proper landscaping, and similar issues. There is a need for clear definitions of, and distinction between, the terms “pet” and “livestock.” This kind of information could be disseminated when pets are licensed, depending upon the location of the pet or livestock owner.

**Safe Behavior.** An apparent need is for education on appropriate and inappropriate human behavior in lion habitat, including hiking on trails in urban-interface areas.

**Lion Behavior and Habitat.** One group was strong in suggesting that information must be well founded in research, and once adequate research is done, the Department should tailor this information to particular communities. In other words, establish areas of pronounced human/lion interaction based on research and population data. Such information could include lion behavior and what to expect, the need for humans to accommodate them, the acceptability of lions in the interface, the importance of wildlife corridors, human behavior, community-specific data, and sources of disinformation about mountain lions, safety issues, and risks.

**Environmental Education.** General environmental education seems important to many. Potential topics include the history of the ecosystem (changes in the lion range attributable to encroachment), better understanding of human factors, importance of the role of predators within the ecosystem, and consequences of wildfire.

**High Risk Situations.** One group talked about the need to notify residents of high-risk situations.

### Educational Tools

Numerous educational tools were mentioned. These include the following:

- **Targeting audiences** and locations, including neighborhoods located on the urban interface, new homebuyers.

- **Clarifying the message**, basing information on scientifically valid information, and showing the whole picture. (Note: Several participants agreed that the photo used on the current brochure is menacing and should be changed to a more positive image.)
- Developing a **campaign strategy** that is community-specific, frames the message as positive, promotes an urban dwelling ethic, features living and creating, and highlights the need for responsibility.
- **Inter-agency collaboration** that involves NGOs, community organizations, educational institutions, and others. (One suggestion was made to hold a summit to encourage coordination).
- Implementing a **pilot project** that focuses on the areas of greatest need.

Numerous informational channels were mentioned. These are summarized in Table 2.

**TABLE 2**  
**Informational Channels**

- |  |
|--|
| <ul style="list-style-type: none"> <li>• Feature stories in newspapers and magazines.</li> <li>• Public service announcements.</li> <li>• Utility bill inserts.</li> <li>• School visits (e.g, partner with county rangers).</li> <li>• Door hangers</li> <li>• Trailhead guides and personal distribution at trailheads.</li> <li>• Newsletter inserts.</li> <li>• Real estate transactions.</li> <li>• Issue for community plans.</li> <li>• Fairs.</li> <li>• Churches.</li> <li>• Websites.</li> <li>• Project WILD.</li> <li>• Veterinarians and humane societies.</li> <li>• Hotel information racks.</li> <li>• Chambers of Commerce meetings</li> <li>• Feedstores.</li> </ul> |
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## **Educational Priorities**

From their discussion of the above items, groups were asked to establish priorities for education. The following categories summarize the participants' sense of priorities:

**Establish a Department Education and Outreach Coordinator.** Hire and train an AZGF Media/Spokesperson. This person should be proactive and ready to talk to media personnel. The coordinator needs to be available and not out in the field somewhere and should provide outreach to stakeholders. In this way, the Department can be proactive rather than reactive.

**Design the Educational Message.** The message, carefully based on research data, should include information on the lion, ecosystem, and interface as well as human factors. The message should be balanced in the use of language and in coverage.

**Design a Campaign.** The campaign should be carefully crafted to target audiences, select informational media, provide a positive, scientifically based message in the form of planned programs, spots, and commercials about the human-lion interface. The website should be enhanced and include information relevant to particular communities.

**Integrate into Community Planning.** Education should be integrated into community planning efforts. Create multi-stakeholder planning committees for each development (federal, state including AZ Game & Fish, tribes, etc.). During the planning process, the Department would provide information about the importance of including wildlife in the plan. Plan mission statements should include a statement about wildlife and wildlife-human interaction. This would require a high degree of coordination with other agencies, with developers, and with planners.

### **General Comments About Education that is Needed:**

- How to feed pets outdoors without attracting wildlife.
- It would be helpful to have a map of lion locations/areas of concentration, but young male mountain lions move around quite a bit so no map could be entirely accurate.
- There is a continuum of behavior within individual lions and among lions as a species, and what that is.
- Educate the public and lawmakers about zoning to ensure there is a buffer between urban areas and wilderness.
- Teach people not to be timid when they encounter lions, to be as aggressive as possible in order to deter lions from thinking of people as food sources.
- Look thru media reports and other public information, collect common myths, and develop an education piece that debunks them.
- A video on mountain lion dangers could be used to educate responders about mountain lions.
- Treat police officers and first responders as a separate audience and develop materials specifically to educate them.
- Education plan should be proactive, not just wait until problems have already occurred or sightings have increased.
- Train volunteers like site stewards and give them a good basis of information and have them hand out pamphlets personally at heavy recreational use areas in lion habitat (like

Roosevelt Lake). Hand out information at specific trailheads and recreation sites in lion areas that “this is lion country, here’s what might happen, here’s how to respond, you are responsible for your own safety.” Keep pamphlet short and sweet, provide area-specific information, maybe also have additional information available on request. Could be about more than lions: could include issues with bears or other wildlife.

- Could also be a permanent placard on a board at trailheads and recreational sites.
- Signs, because they are passive, are not as effective.
- Develop a lion curriculum like the jaguar curriculum/bone boxes for educators, scouts, students to learn about lions.
- Bring in Project WILD activities to inform kids.
- Do intensive education programs in areas with high potential for problems: lion biology, behavior, what to do if you contact a lion. Program should be concise, a slide show or video presentation. Could give it to HOAs and other groups. Could be given by AZGFD representative or by a trained corps of volunteers. If a video is developed it could go into libraries too.
- Have realtors give good solid information to clients about “living with wildlife.” Require it as part of the disclosure packet to homebuyers. In huge planned communities like Anthem, get brochures to potential homebuyers: “meet your new neighbors – Arizona wildlife.”
- Information should include the message: “don’t feed wildlife.”
- Department should give solid information to kids through schools to correct the myths that are sometimes handed out, review information schools give to kids, educate the educators, start in grade school and go through junior high.
- Educate the media thru workshops: most of the time they report in a reactionary way and the information that goes out is inaccurate. Be proactive to inform them about lion behavior, laws, etc.
- Pet feeding education should be done constantly rather than reactionary.
- Brochure should be in Spanish.
- Most people don’t realize that wild animals are wild—need education on this.

## **Educational Funding**

Numerous ideas on funding were presented. These are listed in Table 3. There was no universal agreement about any one source of funding.

**TABLE 3**  
**Ideas for Educational Funding**

- Make public outreach a requirement for the Heritage Tag Fund.
- Reduce duplication of various Department programs. Use Firewise Program example. Work with Forest service to combine funding resources.
- Expand funding so that it is not so reliant on sportsmen. Heritage Tag has been too dominant.
- “Fine people with dogs off leash and use the revenues for educational outreach purposes - administered by G&F.”
- Explore fees for developers.
- Use volunteer activities.
- Work with non-profits, including educational non-profits. They might have funding to print brochures, host events, etc.
- Public monies on tax forms—check off box to provide education about mountain lion.
- Lottery money.
- Gain the assistance of other agencies—forest service—could develop trailhead brochures.
- License plate fees: in Florida, black bear on license plate helps make the connection.
- Consider raising license / tag fees to fund research
- Voluntary gifts from non-consumptive users would help heal the rift between hunters and non-hunters because sometimes in the past the former have felt like they are carrying the funding load and this would even that out. This is called a “citizen conservation certificate.” Make sure money raised is spent on specific purposes, including lion research, not for a general operating fund.
- Commemorative coin for jaguar fund in Mexico – series of similar Arizona wildlife coins could help with funding.
- Advocacy groups should help fund.

## Research Knowledge and Priorities

Several research areas were explored. These include:

- **Lion behavior** (movement patterns, behavior patterns in urban areas).
- **Synthesis of existing research literature.**
- **Synthesis of other plans and programs** (what has worked and what hasn't).
- **Biological studies** (of lions, habitat change).
- **Human behavior** (effects of education on daily behavior, what fosters a sense of responsibility, what fosters attitude change, persuasion studies), including coming up with predictors to understand the expectations and demands of what management outcome should look like. Explain and understand the roots of this.
- **Public Opinion/Attitudes** (what are the existing beliefs, attitudes, behaviors in specific communities).
- **Aversive conditioning** - Teaching a lion to do something other than what it is already doing.
- **Repellants.** Use of special repellants for altering the dynamics of a mountain lion encounter.
- Risks to people as a function of **landscape characteristics** versus the risks to people due to individual behavior of wildlife animals.
- Research on the **manipulation of the mountain lion population.**
- Research on the **manipulation of mountain lion habitat.**

Certain participants acknowledged the difficulty in studying lion behavior, stating that lions are hard to research because they are elusive and solitary and are difficult to radio collar. One possibility for observing movement in urban areas is the night camera. In the Santa Monica Mountains, such information was used to decide whether to put a movement corridor below a road. AZ Game & Fish has been using night cameras at water catchments. Maybe the Department could use these cameras in the human-lion interface areas.

## An Integrated Research and Education Plan

One group crafted a plan that would integrate research and education. This is presented in Table 4.

**TABLE 4**  
**An Integrated Research and Education Plan**

- 1. Finalize the Department's protocol using existing and new research,** existing biological literature, and human behavior research. The general consensus was that the Department needed more research to substantiate its protocol. This includes a synthesis of other plans and programs to determine what has worked well and what hasn't. Also, more specific research regarding lion behavior was emphasized, such as lion movement behavior and how lions interact with urban areas. A suggestion was made to tailor this information to particular communities – in other words, to establish areas of pronounced human/lion interaction based on research and population data. In addition, the group urged research, or audits, focused on Arizona Game and Fish itself. This might involve independent audits and critique of population numbers and other data (perhaps data used to establish hunt parameters) conducted by an agency such as the National Academy of Sciences.
- 2. Design the educational message.** In order to design an effective education campaign, the group also suggested additional research in the area of human behavior as well as public opinion surveys to determine what the public already knows and what they don't, attitudes toward lions, and so on. This would enable community-specific data and, possibly, sources of disinformation about mountain lions, safety issues, and risks.
- 3. Collaborate with various governmental and non-governmental agencies,** both for the purposes of spreading the message and for sharing costs.
- 4. Conduct a pilot project** that includes an assessment of current public understanding, implementation of the education campaign, assessment of results, and assessment of cost. The group suggested that the Department first focus on areas of greatest need – that is, areas in which the greatest number of human/lion interactions has occurred in order to focus resources in areas where greatest need exists. If a project is successful in these areas then it is likely to be successful statewide.
- 5. Aim for statewide implementation** of (revised) education project.

## General Comments About Research:

- Data on “behavior of concern” issues.
- Can lions be relocated?
- Can habituated/potentially problem lions be successfully aversively conditioned to no longer be habituated/potential problems? One consideration is the need to do this in a study setting where conditions can be controlled.
- Ensure consistency between new database about lion interactions with other department databases about large predators such as wolves and jaguars. This would help AZGFD find particular areas where large predators are, and where there are “hot spots” (areas where humans and predators are intensely competing for habitat). Make this into a comprehensive collection of data about human-wildlife interactions. Include a habitat mapping / GIS capability. Could be used to predict future problem areas and develop proactive solutions.
- Consider collaring urban lions to determine what their home ranges are.
- Have AZGFD go out when a hunter gets a lion or set up mandatory check-in to collect weight and sex data on a consistent basis, to correct the current system where the data collection is questionable. Group discussed whether this is needed, since this year hunters must send in a tooth that shows age and you can generally assume that older lions weigh more. Could also find a body dimension that indicates something about size/weight, as in bears where chest measurement charts indicate weight, and require hunters to measure and turn in data. Group asked how will this help us understand urban lions? One thought was that any more information about them will help us manage them better, whether in urban areas or statewide. Baseline info about wildland populations may be helpful.
- Is it the transient animals that are causing the conflicts, or more stationary animals whose home range happens to include urbanizing areas?
- Within the “urban interface” in general, are there more specific areas that have some kind of characteristics that we can find out and use to predict future problems? Look at previous problems area for common characteristics, in management or policies particularly, that may have led to the problem.
- Are mountain lions just looking for food, or have they lost their fear of humans? Or were they ever afraid in the first place?
- In other countries, certain breeds of dogs fend off mountain lions and so do llamas. Research the use of domestic animals to deter lions.
- Look at cause of habitat fragmentation and encroachment into lion habitat and how it affects prey species and changes their food supply.
- When lions are lethally removed from the urban interface, analyze the stomach contents to see what the lion has been eating.
- Look thru media reports and other public information, collect common myths, develop an education piece that debunks them (also see *education*).
- Look at other western states with high lion populations, especially those with low attack rates (in terms of # lions and # people), and learn how they are managing urban interface issues and education programs, and what information they have about education, policy and research.
- Study sub-adult dispersal especially in urban interface.

# Legislation

## Immunity Legislation

In general, there was support for some form of **limited immunity** for AZ Game and Fish rather than full immunity, citing concerns that full immunity could possibly lead to unintended consequences, negligence, or a negative public image. Immunity, while possibly eroding public scrutiny and accountability, has the potential of increasing personal responsibility by the general public, allowing greater flexibility for wildlife management, and making dollars used for litigation defense available for wildlife management. One group agreed that the Department should have immunity if (1) they were working within their guidelines and protocol, (2) provided sufficient information, and (3) remained proactive.

### General Comments About Immunity Legislation:

- “Look at the bear attack example, where the Department relocated a bear 1 mile from a campsite and it attacked someone that night...There cannot be absolute immunity from such cases.”
- “It seems fair that the state should have immunity. I support it. How can the state be held responsible for the actions of its wildlife?”
- “Does this come down to ownership or management of the animal? What constitutes state property/public trust?”
- “Negligence has to be in there somewhere. If a strict protocol is followed than the Department would be covered.”
- “If the current protocol goes through the rule process and is adopted and approved then it would be easier to have legal immunity in place to protect the Department.”
- “Limited immunity does not give much leeway for a mountain lion incident.”
- “Limited immunity will cause a lot of loopholes for lawyers. Don’t want the Department to be driven by fear of lawsuits. Whether protocol was followed will also leave loopholes.”
- “Probably one of the most important things is that you are doing education—shouldn’t be liable. Can’t control everything. If getting attacked by an animal, probably doing something you shouldn’t be.”
- “I’ve heard there’s a stupid motorist rule. Could have a stupid person rule—if certain warnings put up and person violates—no liability. If say ‘do not do’ and person violates them—no liability for department.”
- “Key is ‘good faith effort’ to inform. I have difficulty holding Department responsible for wildlife behavior.”
- “If have strong policies, usually OK in terms of litigation. If don’t follow them, dead in terns of litigation.”
- “I think it’s outrageous that the department can be sued.”
- “Can we approach this from the other side? Should we try to define when the state is negligent? Could this establish a more accurate set of criteria for when the Department might be negligible?”

- “Real good idea, it is appropriate, but it will be necessary to structure it in such a way that keeps the Department proactive in wildlife management.”
- “If there was an improper response to an attack, Department should be held accountable.” (Expressed concerns that there would be less scrutiny of Dept actions.)
- “The Department, if they document activity and positive actions taken in management of wildlife, shouldn’t be held responsible or sued for malfeasance.”
- “There needs to be sufficient information about each animal as an individual. (What caused it to do what it did? Was it sick, injured, hungry, etc.?)”
- “It’s ludicrous that the state is responsible for what wildlife does.”
- “It’s ridiculous that state dollars go to pay people who sue because they hit an elk with their car.”
- Sabino Canyon example: “If my son had died because a lion that should have been killed was not killed then I want the right to sue the State.” Immunity cannot be absolute and especially should not extend to protect people who are not knowledgeable but are making decisions anyway (like the Governor).
- Putting signs on trails should be enough to establish immunity – should relieve the state of liability.
- “Reasonable and prudent judgment” is the phrase used: if AZGFD has used this judgment, then the Department is not negligent. Department ability to show a response even if the response turns out not to have prevented an attack should establish immunity.
- If AZGFD experts have made professional judgments, public has been informed, reasonable procedures have been followed, yet there was an incident or attack, AZGFD should be immune.
- If AZGFD does not have immunity they have incentive to kill every wild animal in order to remove their liability.
- Department should have responsibility and latitude to act professionally and to keep informing the public.
- Immunity should be given: fear of a lawsuit is changing how AZGFD manages animals, particularly large carnivores and changing it in ways that don’t benefit wildlife. “The tail is wagging the dog.” Fear of lawsuit is determining wildlife management decisions that should be based on science.
- Immunity should not cover neglectful or criminal actions.
- If AZGFD follows the lion protocol developed throughout these workshops it should have immunity.
- The reality is that there is no such thing as complete immunity but frivolous lawsuits should be prevented through legislation.
- How would the state benefit from liability and what would the drawbacks be?
- Benefits: would not cover neglectful or criminal actions, would be supported by a strong protocol, would protect Department from frivolous lawsuits
- Drawbacks: ensuring AZGFD accountability.
- Conditions: that AZGFD should continue educating the public and providing advisories, exercise reasonable and prudent judgment, use good science, follow protocol.

## Wildlife Feeding Legislation

Participants generally agreed that there needs to be a mechanism in place to **deter the feeding of wildlife**, with the exception of birds. Game & Fish should focus on the predator-prey relationship that causes a public safety issue and clearly list animals that should not be fed on public outreach/educational materials. A distinction would need to be made between intentional and unintentional feeding (e.g., gardens). There would have to be clarification about what actions can be taken against violators of feeding laws on both private and public lands. Participants raised questions about whether there should be both city and state ordinances or just statewide legislation. Some participants questioned whether legislation would do any good in deterring feeding practices.

### General Comments About Wildlife Feeding Legislation:

- “Look at Coconino county example where birds are exempted...Feral cats should also be exempted - they are taken care of by many people in the Flagstaff community.”
- “An escalating fine schedule should be implemented on various violations.”
- “AZGF Department should develop a template of an ordinance.”
- “A city should step in on issues like pets being kept/chained in backyards or water being left out in drought areas...”
- “One recommendation would be to look at issues like ponds/fountains in yards that attract wildlife. ...Another idea would be to limit flora/fauna and cover near water.”
- “There should be an information/educational campaign prior to enforced legislation.”
- “I think any ordinance should be handled at the state level. It should be passed at a higher level.”
- “Will the legislation specify that any feeding of wildlife, excluding birds, is harmful? If they do not state this clearly, people will continue to feed certain wildlife without realizing that they may be feeding other animals or attracting predators.”
- To what level has it been documented that wildlife is affected by feeding?
- At what point is wildlife not drawn in by birdseed? We need more information to understand whether this should be allowed and under what conditions, or whether a wildlife feeding bill should prohibit all feeding.
- Okay to feed hummingbirds.
- Not okay to leave water and food for lion prey (specific species).
- Anything that draws in a javelina should be addressed.
- Should keep this issue separate from the issue of baiting wildlife for legal hunting.
- There is a difference between urban and rural feeding.
- Municipalities should pass ordinances to prevent the kinds of feeding that attract lion prey – rather than a statewide ban, go community by community.
- Consider how such local ordinances would affect AZGFD since the State would not be able to enforce.
- Consider the fact that bird feeding is a huge business and municipalities may decide they’d rather keep the revenue than limit it.
- People fed deer in Sabino for decades before the lions driven out by the Aspen fire came looking there for dinner.

- Education should go along with legislation to teach people that “a fed animal is a dead animal” so people recognize consequences and take personal responsibility.
- Legislation should include bird feeding. In addition to reducing the amount of seed available to attract wildlife that are prey for lions, other reasons not to feed birds: plant native plants instead, prevent disease vectors, stop attracting exotic and non-native species.
- Generally the Legislature should not get involved in an issue like this, but if AZGFD is going this way then the person who left out a dog food bowl and created an encounter by accident should not be treated the same as the person who habitually and intentionally fed wildlife in contradiction of such a law. One night of forgetfulness should be okay. Law should be flexible to allow for this.
- Legislation that outlaws bird feeding will be controversial and tough to pass.
- Okay to use bird feeders that don’t drop lots of seed on the ground.
- Intentionally feeding large numbers of birds or feral animals in a purposeful, intentional way should not be allowed.
- Legislation should not just prohibit feeding wildlife in urban areas but also in urban interface areas.
- There should be a process, including a warning that a second visit means a ticket and is followed by an education process. This separates the one time accident from the habitual, intentional problem.
- How could legislation address intentional feeding at livestock operations? Can livestock owners be held responsible, especially if they are grossly mismanaging their animals?
- Have a pool of volunteers available through AZGFD to help in situations when people are proving unable to control their domestic animals.

## **Funding**

Several funding ideas were discussed in the context of education and are listed in the section above. Ideas emerging in this discussion include using Proposition 202 money, penalty fees, consumptive and non-consumptive user taxes, bird-watcher fees, money from other agencies, development fees, user groups, tax check-off, license plates, retail store contributions (e.g., recreation stores), and tax on outdoor gear. In discussing funding legislation, a number of points were made:

- One participant emphasized the need to include non-hunters in their outreach and funding efforts: “I would like the Department to consider me, as a citizen, to be an important resource for both funding and other aspects of mountain lion awareness.” Another person said, “Need to get funding off the backs of sportsmen.”
- Very little money from license plates goes to environmental uses.
- There needs to be assurances for those people purchasing items that are taxed or have a portion of the sale price allocated to wildlife issues (such as hiking boots). Citizens need to know who is managing this money and what it is being used for.
- There needs to be pressure on politicians to not openly raid Heritage Fund money that is allocated for these important wildlife issues.

- More of prop. 202 money should be used to fund the AZGF Department like the Heritage Fund does – There should be clear direction given to the Department about how this should be used.
- New funding initiatives are needed, but just asking for new sales tax won't help and won't get passed.
- We're expanding the job of the GF and need to get more funding for them, but annual appropriation is problematic, as it leads to a lack of continuity. Legislature would have to have some kind of continuity class so wouldn't give money one year and take it away the next.
- Is there a non-profit support group associated with Game & Fish? Wildlife for Tomorrow Foundation. Could get more aggressive. Just hired new executive director. Most of the money is direct giving in fundraising campaigns. Could do this more.
- There should be a tax on land development that goes for wildlife education, purchasing land for habitat – anyone taking land from wildlife should be compensating wildlife for it. Must be dedicated, not included in general fund or open to raiding by the Legislature.
- On the water bill there should be a checkoff "if you want to donate a dollar to the wildlife fund check here."
- Increase participation in state income tax checkoff through education and marketing. Educate tax preparers to alert their clients to this option.
- Tax outdoor recreation equipment.
- Sell specialty license plates.

## Gaps and Other Areas

Several additional areas for legislation were explored, including the following:

**Education and Outreach.** Several participants stressed that education and outreach should be vigorously pursued before resorting to legislation. In addition, even with legislation, each statute should contain incentive programs, diversion programs, warning provisions, and varying levels of enforcement.

**Habitat Protection.** Several suggested that habitat protection legislation be pursued, including protection for travel corridors. Corridors and large areas should be part of a larger habitat plan and AZGF should be aggressively involved in this issue. This could include trail closures or specifying hours of operation for recreational areas. California apparently has model legislation in this area. One idea is to provide tax relief for landowners who contribute to habitat preservation.

**Hunting Regulations.** A few participants explored change in status of the species in terms of hunting. This could involve establishing a limited season and increasing protection of females, especially with kittens. Better records need to be kept of the lion take. This area was controversial as participants disagreed about the feasibility of these kinds of changes.